

12. Noise

Introduction/ Setting

The State Office of Planning and Research (OPR) Noise Element Guidelines require that major noise sources be identified and quantified by preparing generalized noise contours for current and projected conditions for the following noise sources:

- (1) Highways and freeways;
- (2) Primary arterials and major local streets;
- (3) Passenger and freight on-line railroad operations and ground rapid transit systems;
- (4) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation;
- (5) Local industrial plants, including but not limited to railroad classification yards;
- (6) Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

Noise contours are required for these sources, stated in terms of the community noise equivalent level (CNEL) or day-night average level (Ldn), and may be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise.

Based on discussions with City of Auburn staff regarding potential major noise sources, it was determined that there are several potentially significant sources of community noise within the Plan area. These sources include traffic on major roadways and highways, railroad and airport operations, and industrial activities.

Analytical noise modeling techniques and noise measurements were conducted by Brown-Buntin Associates to develop generalized Ldn noise contours for the major roadways, airport, railroads and industrial noise sources in the Plan area for existing (1992) and future conditions. The full noise report with complete data is presented in the General Plan Appendix. The following summarizes that report.

Noise models predicted noise levels based on experiences in other locations and on laboratory tests. The noise modeling techniques used in this document employ commonly accepted assumptions and information specific to each noise source including average levels of activity, hours of operation, seasonal fluctuations, and average levels of noise from source operations. The techniques used closely followed recommendations made by the Office of Noise Control, and were supplemented where appropriate by field-measured noise level data to account for local conditions.

A community noise survey was conducted to describe existing noise levels in noise-sensitive areas within the Plan Area so that noise level performance standards could be developed to maintain an acceptable noise environment.

Assumptions

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop L_{dn} contours for all highways and major roadways in the Study Area. The FHWA Model is the analytical method presently favored for traffic noise prediction by most state and local agencies, including Caltrans. The current version of the model is based upon California noise emission factors (CALVENO) for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver and the acoustical characteristics of the site. The FHWA Model predicts hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within 1.5 dB. To predict L_{dn} values, it is necessary to determine the hourly distribution of traffic for a typical 24-hour day and to adjust the traffic volume input data to yield an equivalent hourly traffic volume.

BBA conducted short-term (15 minute) traffic noise measurements and concurrent traffic counts adjacent to the major roadways in the Plan Area. In addition, continuous (24-hour) noise measurements were conducted by BBA adjacent to I-80 and Highway 49. BBA also made use of available traffic noise level measurement data which was collected for various recent projects in the Plan Area. The noise measurements were made to evaluate the noise exposure due to traffic on all major roadways in the Plan Area. The locations of the traffic noise measurement sites are shown on Figure 12-1.

The purpose of the traffic noise level measurements was to determine the accuracy of the FHWA model in describing the existing noise environment within the Plan Area. Noise measurement results were compared to the FHWA model results by entering the observed traffic volumes, speed and distance as inputs to the FHWA model. The results of the traffic noise measurements are summarized in Table 12-1. Because local topography, vegetation or intervening structure may significantly affect noise exposure at a particular location, the noise contours should not be considered site-specific.

Table 12-1 COMPARISON OF FHWA MODEL TO MEASURED NOISE LEVELS Auburn General Plan Area Roadways						
Site	Roadway	Location	Dist. (Feet)	Measured L_{eq} , dB	Modeled L_{eq} , dB	Difference dB
1	Interstate 80	Indian Hill Road ⁴	150	69	70	1
2	"	High Street ¹	300	62	64	2
3	"	Bowman Road ⁵	275	58	64	6
4	"	Mill Pond Road ³	200	65	67	2
5	"	Werner Road	100	72	74	2
1	Within City Limits					
2	Within Existing Sphere of Influence					
3	Within Expanded Sphere of Influence					
4	Within both Existing City Limits and Sphere of Influence					
5	Within Existing and Proposed Sphere of Influence					

Table 12-1
COMPARISON OF FHWA MODEL TO MEASURED NOISE LEVELS
Auburn General Plan Area Roadways
(See Figure 12-1 for locations)

Site	Roadway	Location	Dist. (Feet)	Measured L _{eq} , dB	Modeled L _{eq} , dB	Difference dB
6*	"	Old Airport ⁵	25	-	-	-
7	S.R. 49	Joeger - Dry Creek ¹	200	57	61	4
8	"	Bell Road ⁵	75	66	68	2
10	"	Palm Avenue ¹	75	62	69	7
12	Auburn/Folsom Road	Rancheria Road ²	80	62	62	0
13	Bell Road	S.R. 49 ²	75	64	67	3
14	Bell Road (cont)	New Airport Road ³	135	60	63	3
15	"	1st Street ²	50	63	63	0
16	"	East of New Airport ³	75	72	69	-3
17	Dry Creek Road	Valley Quail Road ³	60	57	59	2
18	Indian Hill Road	Auburn/Folsom Road ¹	100	60	59	-1
19	Luther Road	Channel Hill Road ²	45	64	63	-1
20	"	Dairy Road ¹	50	68	67	-1
21	"	East of S.R. 49 ⁴	50	62	63	1
22	Mt. Vernon Road	Edgewood Road ²	60	53	55	2
23	Nevada Street	Palm Avenue ¹	35	63	62	-1
24	Palm Avenue	Nevada Street ¹	50	63	63	0

* - Continuous noise measurement site. See Figure I-2 of Noise Study for measurement data.

- 1 Within City Limits
- 2 Within Existing Sphere of Influence
- 3 Within Expanded Sphere of Influence
- 4 Within both Existing City Limits and Sphere of Influence
- 5 Within Existing and Proposed Sphere of Influence

The differences between measured and predicted noise levels were primarily due to the presence or lack of shielding of traffic noise by intervening topography. Topography in the Plan area varies considerably, sometimes alternating from flat to hilly along relatively short roadway segments. Due to the size and topographic complexity of the Plan area, it was not possible to evaluate the effects of topography on the attenuation of traffic noise for every possible topographic configuration. Where it is necessary to generally evaluate the effects of topography on the attenuation of traffic noise at a location not represented by the noise measurements in Table 12-1, the following information may be useful.

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FIGURE 12-1
TRAFFIC NOISE MEASUREMENT LOCATIONS
SOURCE: Brown-Buntin Associates

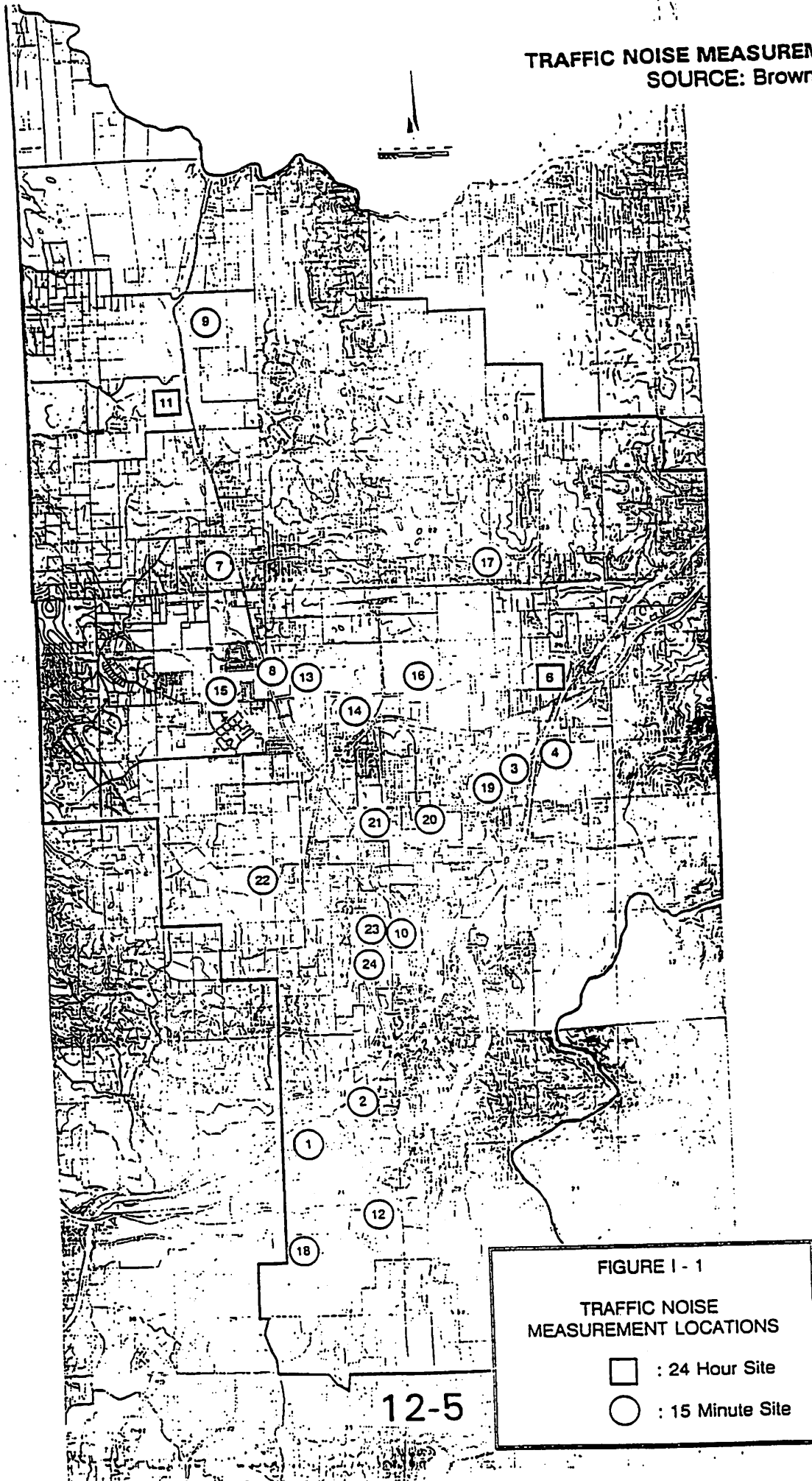


Table 12-1 shows that the FHWA Model generally overpredicted noise exposure at all of the measurement locations within the Plan area, with the exception of locations which were basically at grade with the roadways being measured. This is consistent with BBA experience with the model, and is probably due mostly to the fact that the predicted levels do not account for excess ground attenuation, shielding, or atmospheric absorption over distance. The greatest amount of overprediction occurred in areas which were shielded from view of all or part of the roadway by intervening topography.

Traffic data representing annual average traffic volumes for existing conditions and buildout under the Proposed Plan were obtained from the City of Auburn. These data are summarized in the Appendix. Day/ night traffic distribution and truck mix were based upon Caltrans data and BBA file data. Using these data and the FHWA methodology, traffic noise levels as defined by L_{dn} were calculated for existing (1988) traffic volumes. Distances from the centerlines of selected roadways to the 60 dB L_{dn} contour are summarized in Table 12-2 for existing conditions and for the three future development scenarios. The approximate 60 dB L_{dn} traffic noise contours for existing and future conditions are shown on Figures 12-3 and 12-4.

These calculations do not include consideration of shielding caused by local buildings or topographical features, so the distances reported in Table 12-2 are worst-case estimates of noise exposure along roadways in the Plan area.

Figure 12-2 prepared using the FHWA Model, may be used to estimate the distance to the existing 60 dB L_{dn} contour for projected volumes of arterial traffic on the roadways not included in this analysis. For arterial traffic, the predicted distance to the 60 dB L_{dn} contour is determined by the Average Daily Traffic Volume (ADT) and the posted speed limit. L_{dn} contours derived from Figure 12-2 are only indicators of potential noise conflicts, requiring more detailed analysis to determine traffic noise levels at any given location.

Table 12-2
DISTANCE (FEET) FROM CENTER OF ROADWAY
TO 60 dB L_{dn} CONTOURS
(See Figure 12-1 for locations)

		Distance to Contour, feet	
Segment	Description	1988*	Future Preferred Alternative
Interstate 80:			
1	Newcastle to S.R. 49 ⁴	1532	2575
2	S.R. 49 to Eastern Plan Area Boundary ⁴	1204	2315
State Route 49:			
4	Dry Creek to Bell ²	363	606
5	Bell to Cottage ²	417	584
6	Cottage to Atwood ²	484	591
7	Atwood to Luther ²	468	716
8	Luther to Palm ⁴	451	683
9	Palm to I-80 ¹	400	641
10	I-80 to Lincoln ¹	199	477
11	Lincoln to Foresthill ⁴	118	194
Atwood Road:			
12	Bean to S.R. 49 ¹	98	185
Auburn/Folsom Road:			
13	South City Limits to Indian Hill ¹	65	206
14	Indian Hill to Maidu ¹	121	362
15	Maidu to Sacramento (south) ¹	126	382
16	Sacramento (south) to Sacramento (north) ¹	151	447
17	Sacramento (north) to Lincoln ¹	181	360
Auburn Ravine Road:			
18	Palm to Interstate 80 ⁴	83	179
Bell Road:			
19	Joeger to S.R. 49 ¹	141	243
20	S.R. 49 to New Airport ¹	253	485
21	New Airport to Interstate 80 ²	295	522
Bowman Road:			
22	Foresthill to Luther ¹	156	157
1	Within City Limits		
2	Within Existing Sphere of Influence		
3	Within Expanded Sphere of Influence		
4	Within both Existing City Limits and Sphere of Influence		
5	Within Existing and Proposed Sphere of Influence		

Table 12-2
DISTANCE (FEET) FROM CENTER OF ROADWAY
TO 60 dB L_{dn} CONTOURS

		Distance to Contour, feet	
Segment	Description	1988*	Future Preferred Alternative
Elm Street:			
23	S.R. 49 to Auburn Ravine ¹	178	195
Foresthill Road:			
24	Interstate 80 to Eastern Plan Area Boundary ²	99	157
Fulweiler Road:			
25	Carson to S.R. 49 ¹	83	104
High Street:			
26	Elm to Lincoln ¹	103	162
27	Lincoln to College ¹	88	150
28	College to Auburn/Folsom ¹	80	130
Lincoln Way:			
29	Bowman to Foresthill ⁴	192	206
30	Russell to El Dorado ¹	136	274
31	El Dorado to High ¹	75	262
32	High to East ¹	91	117
33	East to Maple ¹	113	222
Luther Road:			
34	S.R. 49 to Dairy ⁴	127	188
35	Dairy to Bowman ⁴	102	181
Maple Street:			
36	Lincoln to Interstate 80 ¹	95	174
Nevada Street:			
37	S.R. 49 to Mt. Vernon ¹	70	102
38	Palm to Enterprise ¹	90	162
39	Enterprise to Fulweiler ¹	113	150
40	Fulweiler to Interstate 80 ¹	83	168
Quartz Drive:			
41	Galena to S.R. 49 ²	69	102
1	Within City Limits		
2	Within Existing Sphere of Influence		
3	Within Expanded Sphere of Influence		
4	Within both Existing City Limits and Sphere of Influence		
5	Within Existing and Proposed Sphere of Influence		

Table 12-2
DISTANCE (FEET) FROM CENTER OF ROADWAY
TO 60 dB L_{dn} CONTOURS

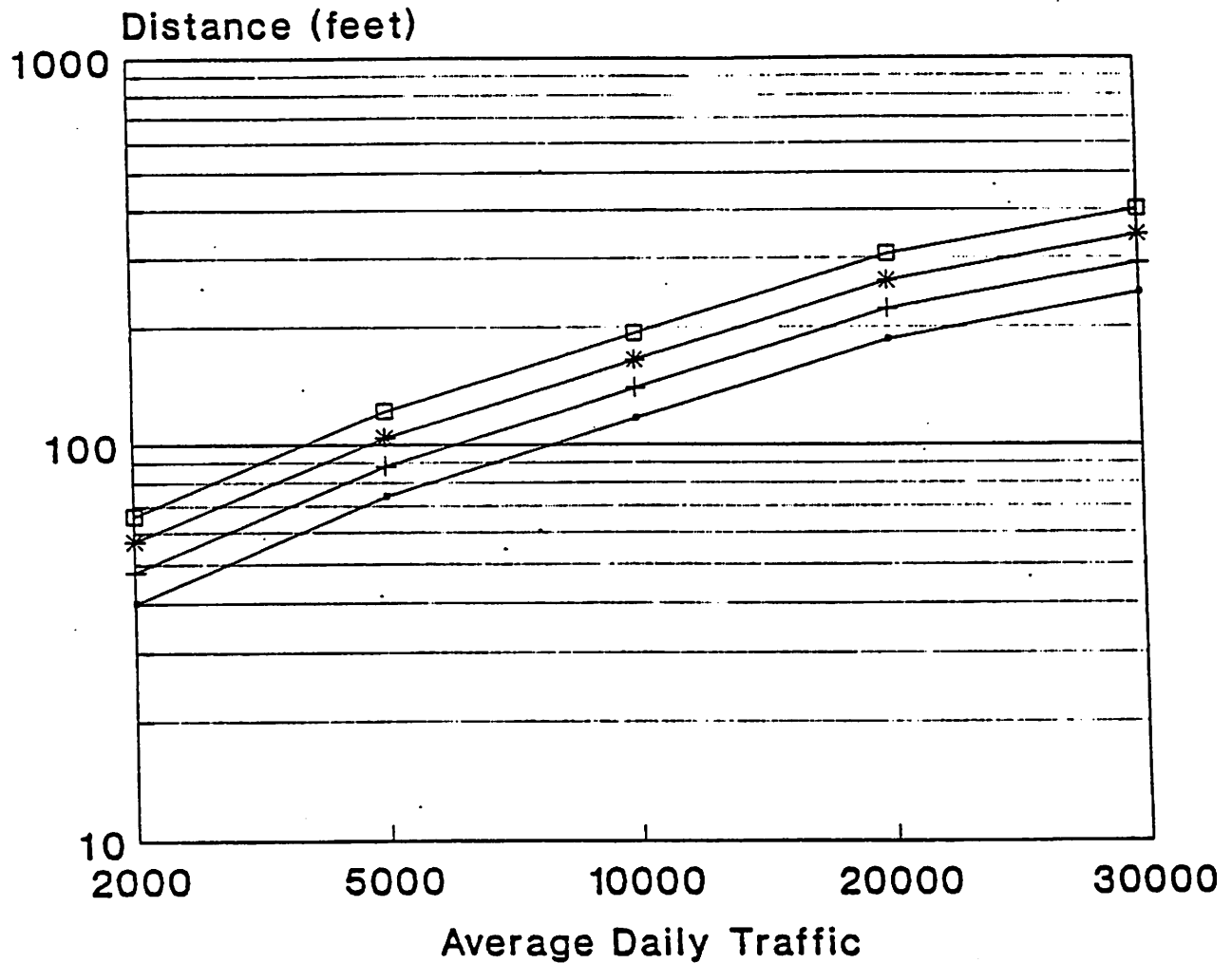
		Distance to Contour, feet	
Segment	Description	1988*	Future Preferred Alternative
Sacramento Street:			
42	Auburn Folsom to Auburn Folsom ¹	67	156
Dry Creek Road:			
43	West of S.R. 49 ²	62	124
44	East of S.R. 49 ²	84	136
New Airport Road:			
45	North of Bell ⁵	37	109
Dairy Road:			
46	South of Luther ¹	37	130
Mt. Vernon Road:			
47	West of Edgewood ⁵	28	150
48	Edgewood to Nevada ²	59	179
Maldu Drive:			
49	East of Auburn Folsom ¹	59	94
Indian Hill Road:			
50	West of Auburn Folsom ⁴	85	162
* - 1988 counts are latest traffic data available.			
1	Within City Limits		
2	Within Existing Sphere of Influence		
3	Within Expanded Sphere of Influence		
4	Within both Existing City Limits and Sphere of Influence		
5	Within Existing and Proposed Sphere of Influence		

Table 12-3 has been prepared to serve as a guide when applying the traffic noise exposure contour information presented in this section to areas with varying topography. The table is used by adding the correction factor to the noise level predicted at a given distance. It should be noted that the adjustment factors presented in Table 12-3 are intended to provide conservative (worst-case) results, and that complex situations should be evaluated by an acoustical consultant where the potential for significant noise impact exists.

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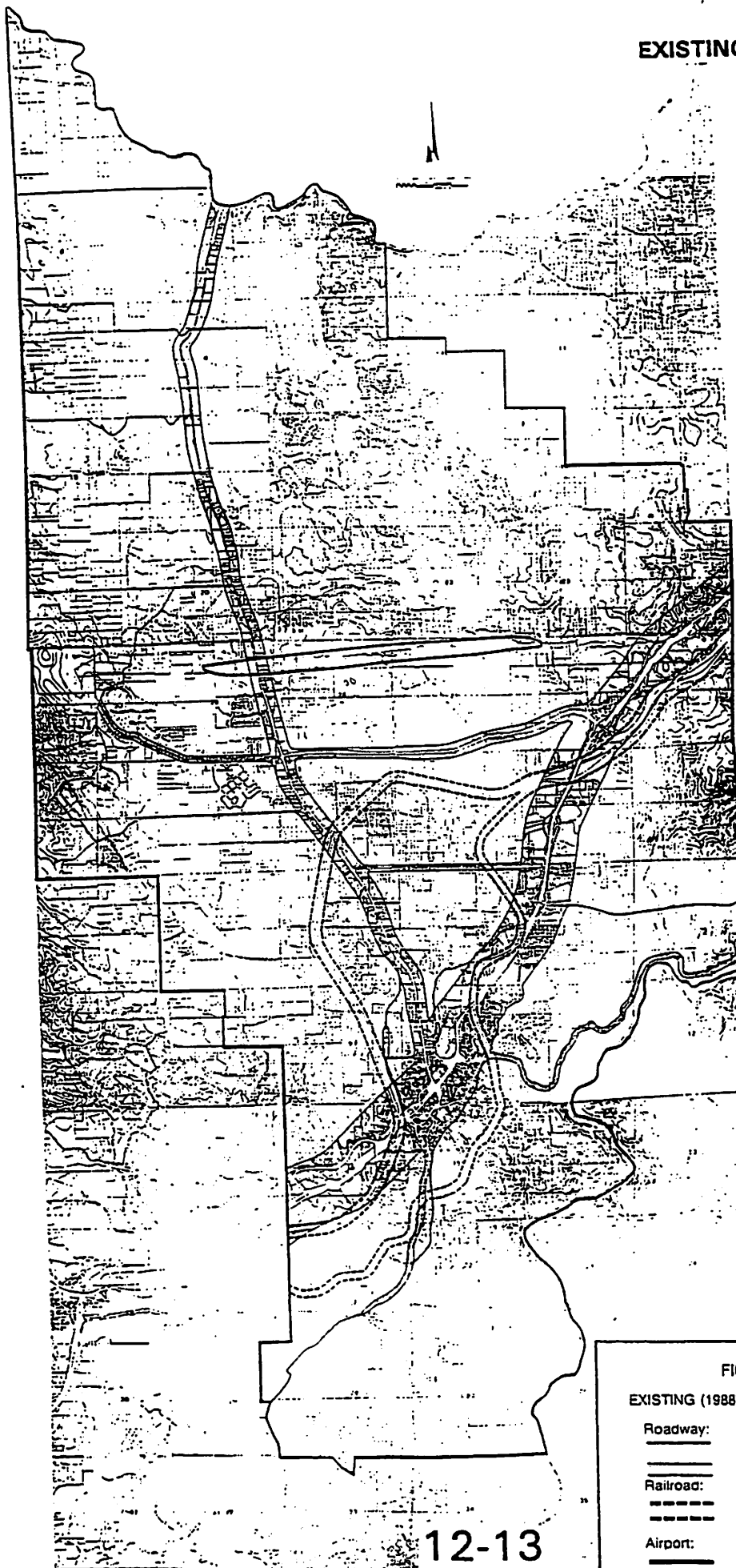
Distance to 60 dB Ldn Contour Arterial Traffic



Posted Speed			
—●—	35 mph	—+—	40 mph
—*—	45 mph	—□—	50 mph

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**FIGURE 12-3
EXISTING TRAFFIC NOISE CONTOURS**



**FIGURE 1-4
EXISTING (1988) 60 dB L_{dn} CONTOURS**

- Roadway:**
 (< 100 feet to centerline)
 (\geq 100 feet to centerline)
Railroad:
 (1986)
Airport:

Source: Brown-Buntin Assoc.

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Table 12-3
TRAFFIC NOISE ADJUSTMENTS FOR VARIOUS TOPOGRAPHIC CONDITIONS

Topographic Situation	Distance from Center of Roadway (Feet)		
	<200	200 - 400	>400
Hillside overlooks roadway	-0-	+1 dB	+3 dB
Roadway Elevated (>15')	-5 dB	-2 dB	-0-
Roadway in cut/below embankment	-5 dB	-5 dB	-5 dB

Railroads. Railroad activity in the Plan area includes freight and passenger activity on the eastbound and westbound Southern Pacific Transportation Company (SPTCo) trackage.

Railroad operational data obtained from SPTCo indicate that approximately 12 freight and 2 Amtrak passenger train operations per day occur on SPTCo tracks in the study area. The freight trains are distributed equally on the eastbound and westbound tracks on a random basis throughout the day. Passenger train operations are scheduled to pass through the study area during daytime hours. The new Capital Corridor passenger rail service, operated by Amtrak, currently runs between San Jose, Oakland and Sacramento. In the future, Capital Corridor passenger train service will likely be extended to Auburn. The number of daily Capital Corridor trains which will extend to the Auburn area is not specifically known at this time, but will likely be a function of demand.

Noise measurements were conducted by BBA at various locations within the Plan area to determine the contribution of SPTCo railroad operations to the area noise environment. The monitoring locations are shown on Figure 12-5. The purpose of the noise level measurements was to determine typical sound exposure levels (SEL), number of daily operations, and existing L_{dn} values for railroad line operations in the Plan area, accounting for the effects of local topography, climate, train speed and other factors which may affect noise generation. The results of the continuous railroad noise measurements are shown on Figure 12-6.

Measurements of individual train passages in the Plan area indicated that the average sound exposure levels (SEL) at 100 feet from the tracks ranged from 91 dB to 103 dB. Measured noise exposure as defined by the day/night level (L_{dn}) ranged from 55 dB to 70 dB (see Table 12- 4).

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FIGURE 12-5
RAILROAD NOISE MEASUREMENT LOCATIONS

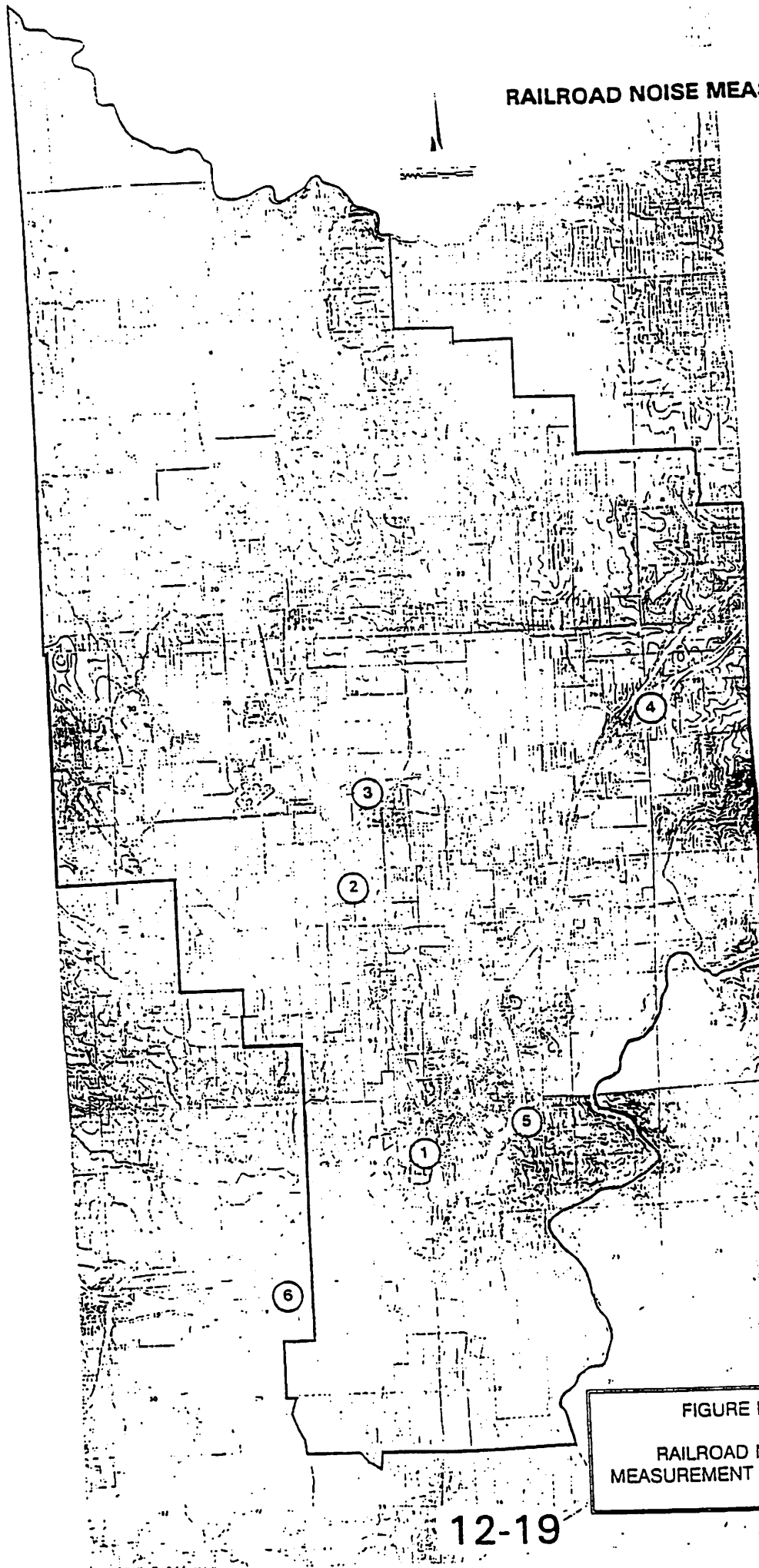
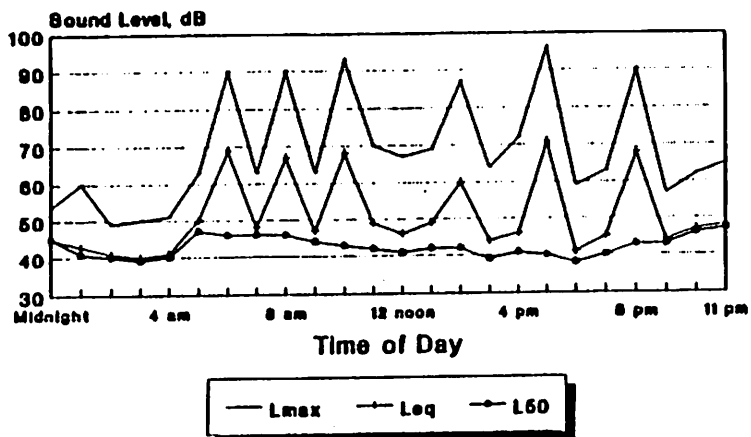


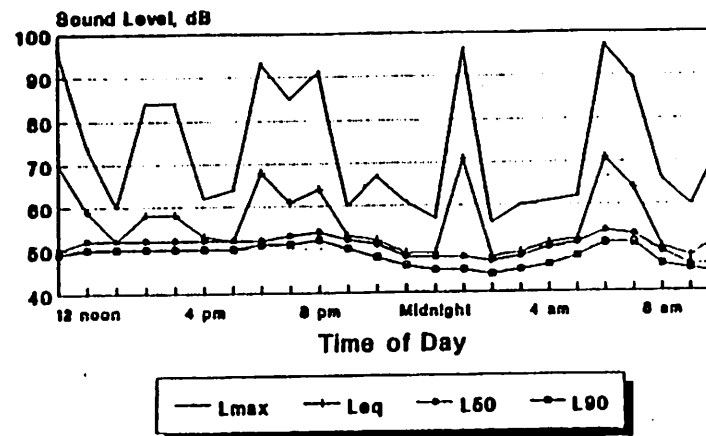
FIGURE I - 5
RAILROAD NOISE
MEASUREMENT LOCATIONS

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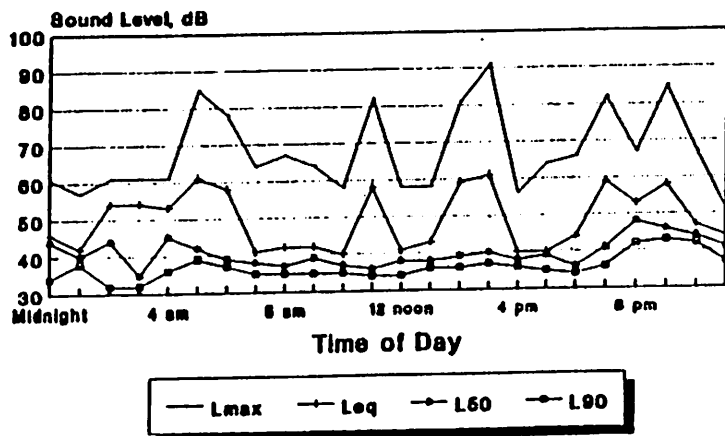
Measured Railroad/Ambient Noise Levels
Auburn/Bowman Plan Site 2 - Lilac Lane
 June 16, 1991



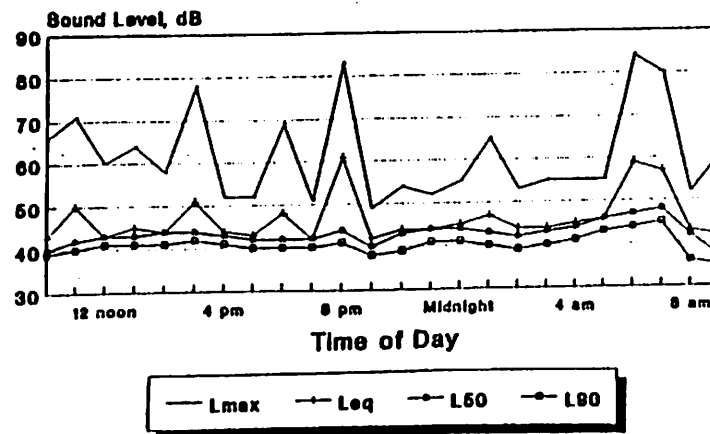
Measured Railroad/Ambient Noise Levels
Auburn/Bowman Plan Site 4 - Bell Road
 August 8-9, 1991



Measured Railroad/Ambient Noise Levels
Auburn/Bowman Plan Site 5 - Virginia Ave
 August 2, 1991



Measured Railroad/Ambient Noise Levels
Auburn/Bowman Plan Site 6 - Newcastle
 August 8-9, 1991



RAILROAD NOISE MEASUREMENT RESULTS
FIGURE 12-6

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Table 12-4
RAILROAD NOISE MEASUREMENT RESULTS
CITY OF AUBURN GENERAL PLAN AREA
 (See Figure 12-5 for locations)

Site	Location	Measurement Date(s)	Train Direction	Apparent Number of Daily Trains	Average Sound Exposure Level (SEL) @ 100 ft.	Measured L_{dn} , 100 feet from tracks	Computed L_{dn} , 100 feet from tracks*
1	High Street ¹	Sept. 26-27, 1989	Eastbound	6	101 dB	66 dB	66 dB
2	Lilac Lane ²	June 14-17, 1990	Eastbound	7	103 dB	68 dB	68 dB
3	New Airport Rd. ²	July 6-7, 1989	Eastbound	7	99 dB	65 dB	64 dB
4	Headquarter House ²	Aug. 8-9, 1991	Both	11	102 dB	70 dB	70 dB
5	Virginia Avenue ¹	Aug. 1-4, 1991	Westbound	6	99 dB	64 dB	64 dB
6	Dillon Circle ¹ - Newcastle	Aug. 8-9, 1991	Westbound	7	91 dB	55 dB	56 dB

* - L_{dn} computation based on typical railroad distribution of 7 trains per day in each direction, randomly distributed.

¹ Within City Limits

² Within Existing Sphere of Influence

³ Within Expanded Sphere of Influence

At the measurement sites, locomotive and warning horn noise were the major contributors to railroad noise levels as defined by SEL. The SEL for freight train operations varied, depending on the train speed, track grade, and the amount of shielding provided by intervening topography.

The railroad noise levels measured at site 6 were less than the levels measured at the other locations due to slow train speeds and topographic shielding. At site 2, the railroad tracks were elevated approximately 20 feet relative to the noise measurement site. The elevated tracks reduced the effects of ground absorption, and the measured noise levels were therefore higher than at the other railroad noise measurement sites.

Fixed Noise Sources. The production of noise is a result of many industrial processes, even when the best available noise control technology is applied. Noise exposures within industrial facilities are controlled by Federal and State employee health and safety regulations (OSHA), but exterior noise levels may exceed locally acceptable standards. Commercial, recreational and public service facility activities can also produce noise which affects adjacent sensitive land uses.

From a land use planning perspective, fixed-source noise control issues focus upon two goals: to prevent the introduction of new noise-producing uses in noise-sensitive areas, and to prevent encroachment of noise sensitive uses upon existing noise-producing facilities. The first goal can be achieved by applying noise performance standards to proposed new noise-producing uses. The second goal can be met by requiring that new noise-sensitive uses in proximity to noise-producing facilities include mitigation measures to ensure compliance with noise performance standards.

Representative Industrial Sources. The following descriptions of existing fixed noise sources in the Plan Area are intended to be representative of the relative noise impacts of such uses, and to identify specific noise sources which should be considered in the review of development proposals. These sources were identified through recommendations by City staff and by BBA observations.s1.5

— **California Department of Forestry Helipad:**
Contact: Steve Taylor

The California Department of Forestry (CDF) operates a helipad near the intersection of Lincoln Way and Rhodes Krueger Drive, northeast of the I-80/Bowman Road interchange within the proposed Sphere of Influence. The CDF helipad location is shown on Figure 12-7. According to CDF staff, the helipad is used by the CDF, United States Drug Enforcement Agency (DEA), California Highway Patrol (CHP), UC Davis LifeFlight, Reno CareFlight and Stockton MediFlight.

The CDF operates a Bell 204B helicopter, capable of carrying 9 passengers and equipment. CDF staff reported that the CDF operates a Bell 204B helicopter (Huey) at the helipad during the Summer months when there is a fire in the immediate vicinity of the CDF station. Because the CDF refuels the helicopter near the fire operations, the helicopter is seldom operated from the helipad. The majority of the fire-related operations occur at the fire site, where it is fueled and loaded with staff and equipment. CDF staff reported that the helicopter was used once a day at the helipad during the "49'er" fire of 1988.

FIGURE 12-7
INDUSTRIAL/FIXED NOISE SOURCES

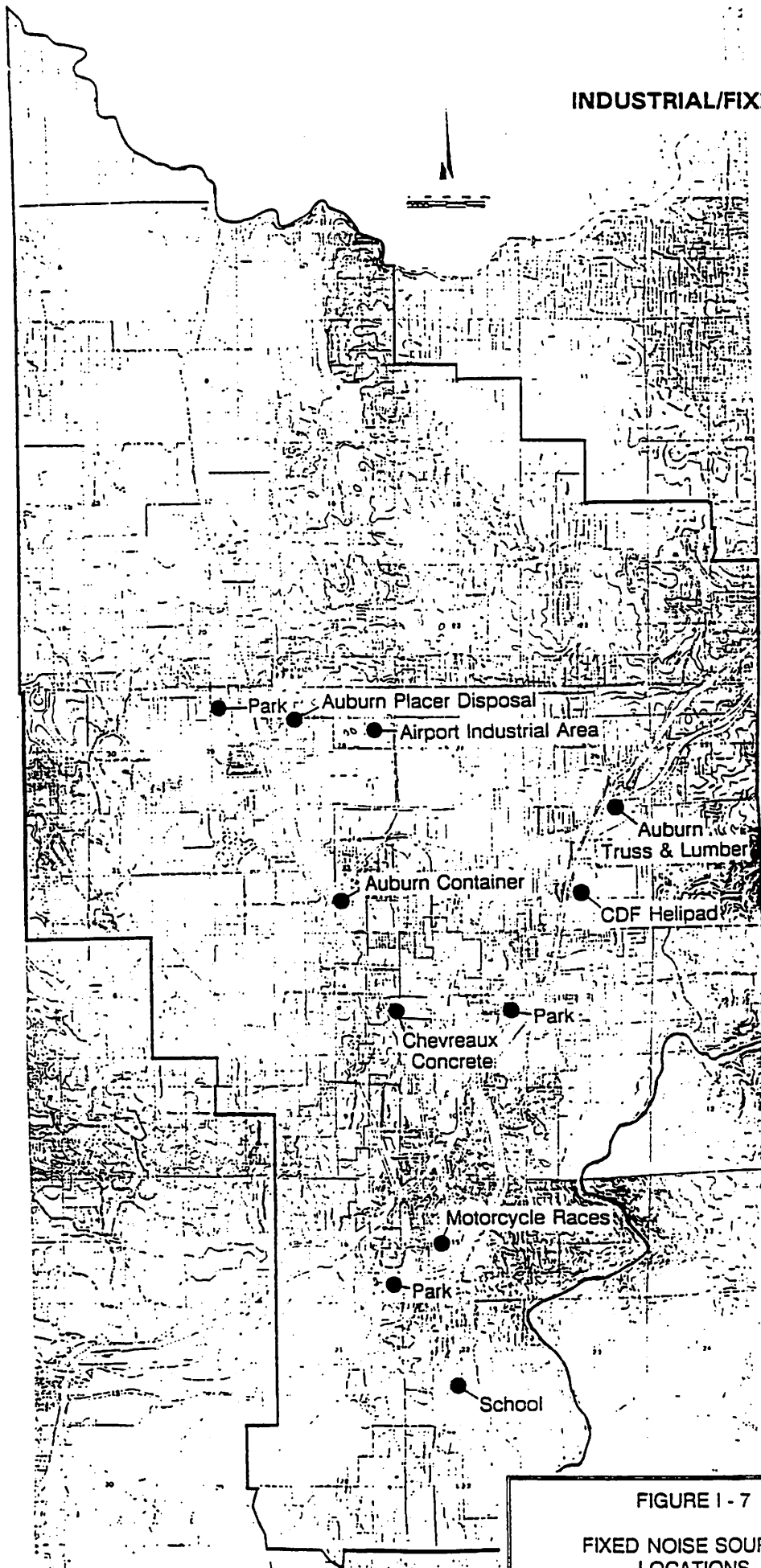


FIGURE 1 - 7
FIXED NOISE SOURCE
LOCATIONS

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CDF staff further reported that helicopters using the helipad typically approach and depart perpendicular to I-80, over the canyon area east of the helipad. However, pilots may deviate from that pattern in response to safety concerns.

The California Highway Patrol (CHP) operates a Bell 206 Jet Ranger in the Auburn area, and uses the helipad infrequently when necessary to provide medical support to accident victims or other governmental agencies. The Drug Enforcement Agency (DEA) stations a Hughes 500 helicopter at the helipad during the period of September through November. The DEA helicopter is reportedly used for aerial search and observation of marijuana growing areas. DEA operations are reported to be two arrivals and departures per day during those months.

For medical emergencies in the Auburn area, UCD Lifeflight and Reno CareFlight operate Alouette helicopters, and Stockton MediFlight operates an A-Star. These organizations typically use the CDF helipad only when it is not possible to land nearer to situations requiring aerial evacuation of persons in need of immediate and/or specialized medical attention.

— **Auburn Truss & Lumber:**

Contact: Wayne Larson

Auburn Truss & Lumber, located at 14002 Musso Road within the existing Sphere of Influence, manufactures trusses. Typical hours of operation are from 7 am - 3:30 pm, Monday through Friday. The facility reportedly does not operate on weekends, but may operate until 6 pm during periods of high demand. Noise producing equipment used at this facility includes forklifts, staple guns, air compressors, saws and a crane (boom truck). Heavy truck usage at the facility consists of 4 flatbed trucks per day and 1-2 heavy lumber trucks per week.

— **Chevreaux Concrete:**

Contact: Joe Chevreaux

The Chevreaux Concrete company is located east of the intersection of Marguerite Mine Road and State Route 49 within the existing Sphere of Influence. Typical hours of operation are reportedly 6 am to 6 pm with occasional operations during early morning and evening hours as demand dictates. Noise is generated at this facility by the concrete batch plant and by front loaders and cement and gravel trucks.

— **Public Address Systems/Drive up Window Speakers:**

Source: Brown-Buntin Associates, Inc.

Public address systems and drive up window speakers are used extensively in the City of Auburn General Plan Area. The most prevalent usage of these systems is at car dealerships and fast food restaurants. Studies have shown that people are more highly annoyed by amplified speech or music than by continuous noise sources of similar intensity such as highway traffic. Noise generated by these systems depends primarily on the amplifier setting, and is therefore highly variable.

— **Airport Industrial Area:**

Source: Brown-Buntin Associates

Uses identified in this area include Century Lighting, Coherent Industries, Doug Spense Construction, Pacific Bell, Mussetter Distributing Inc., RJT Construction, Auburn Foothill Quality Door, Harris & Ruth Contractors, Nella Oil Company, the Skunk Works, advanced ceramics, and various aviation maintenance facilities. The area is within existing City limits. The most notable noise sources associated with these operations were operation and/or maintenance of medium and heavy commercial truck fleets. Although there does not appear to be any noise sensitive development in the immediate vicinity of the airport industrial area, the potential for noise generation in this area should not be overlooked if neighboring noise sensitive developments are considered.

— **Auburn Container Company:**

Contact: Arthur Moorehouse

The Auburn Container company is located on the east side of State Route 49, between the Southern Pacific Railroad tracks and Luther Road within the existing Sphere of Influence. According to the plant manager, normal operating hours are from 7 am to 3:30 pm, Monday through Friday. The plant occasionally operates on Saturday from 7 am to 12 noon. Equipment used at the plant consists of resaws, cutoff saws, a rip saw, a molder, a cleat machine, cyclones, and a chipper. The cyclones are located about 30 feet above ground level at the plant building. The chipper is located at ground level near the east property line of the plant. The chipper normally operates the entire time the plant is in operation. In addition to the aforementioned noise sources, there are 5 diesel trucks per day entering and leaving the plant.

— **Community Plan Area Parks and Schools:**

Source: Brown-Buntin Associates

Parks are often considered noise sensitive uses due to the passive recreation which takes place there. However, such uses may also be significant noise producers during active recreation activities such as basketball and softball games. Park and school sites are located throughout the entire Plan area. The amount of noise generated by such uses varies with age of participants, event size and location, as well as the hour during which the activity takes place. To some degree, the noise generated by such uses can be controlled by enforcing curfews, and by locating noise generating activities away from existing or proposed noise sensitive land uses.

Schools are similar to parks in that active recreation at outdoor playing fields of the schools could result in significant noise levels. School buses also add to the facility noise levels. Future land use planning should consider the potential for noise generation at the playing fields, and noise sensitive land uses should be discouraged adjacent to those areas.

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— **Auburn Placer Disposal**
Contact: Eileen Dominguez

Auburn Placer Disposal is located on Shale Ridge Road, east of S.R. 49 and within the existing Sphere of Influence. The facility serves as a refuse disposal transfer station and recycling center. The facility is open to the public between 8 am and 5 pm, but garbage trucks start leaving the facility at 4 am. Approximately 40 heavy truck trips are generated by the facility daily. Noise is also generated by use of the compactor and maintenance operations at the facility.

Airport Noise. The Auburn Municipal Airport is situated on 210 acres in the northwest section of the City 1/2 mile east of Highway 49, one mile north of Bell Road within a City limits island. The Airport is a Basic Utility, Stage I category facility which can handle 75% of small general aviation aircraft (12,500 pounds gross weight maximum). The existing paved runway, Runway 7-25, is 3,100 feet long and 60 feet wide.

An Airport Master Plan and Environmental Impact Report are currently in progress for the Auburn Municipal Airport. The existing and worst-case future Airport noise contours which were prepared for these documents are reproduced in Figures 8 and 9, respectively. According to these contours the noise sensitive use most affected by airport operations is the Rock Creek Mobile Home Park, located west of Highway 49 between Bell and Dry Creek Roads. The contours indicate that the Mobile Home Park is currently exposed to aircraft noise levels between 60 and 65 dB CNEL.

BBA conducted continuous aircraft noise measurements at the Rock Creek M.H.P. from June 27-30, 1991 to gather single event noise level data and to compute aircraft CNEL at that location. A Metrosonics dB-604 Environmental Noise Analyzer was used for the aircraft noise level measurements. The equipment was calibrated before use with a Bruel & Kjaer Type 4230 acoustical calibrator, and meets all pertinent specifications of the American National Standards Institute for Type I Sound level measurement systems.

In order for an aircraft to register as a single event, the noise level generated by the aircraft had to remain above 60 dB for a minimum of 10 seconds. These thresholds were set in order to filter out non-aircraft events such as passing cars. The results of the aircraft noise level measurements are shown in Table 12-5, and are displayed graphically on Figure 12-10.

Table 12-5 AIRCRAFT NOISE MEASUREMENT RESULTS ROCK CREEK M.H.P - JUNE 27-30, 1991					
Date	Day of Week	Apparent # of Aircraft Departures	Range of Maximum Noise Levels, dB	Mean Sound Exposure Level, dB	Aircraft CNEL, dB
June 27	Thursday	98	61-81	79	50
June 28	Friday	8	61-77	80	40
June 29	Saturday	53	64-79	81	49
June 30	Sunday	83	62-81	81	53

FIGURE I-8

EXISTING (1986) AUBURN MUNICIPAL AIRPORT NOISE CONTOURS

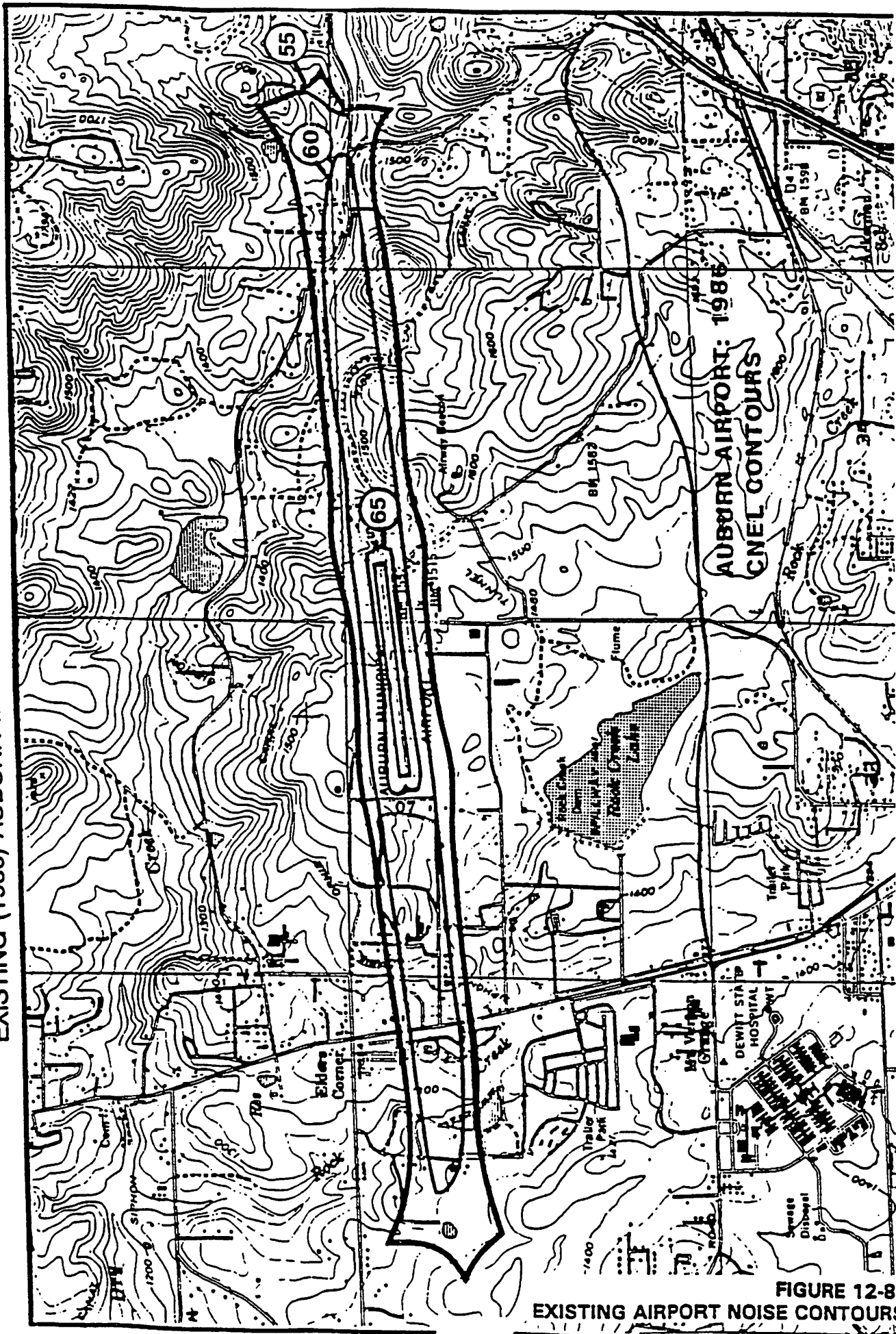
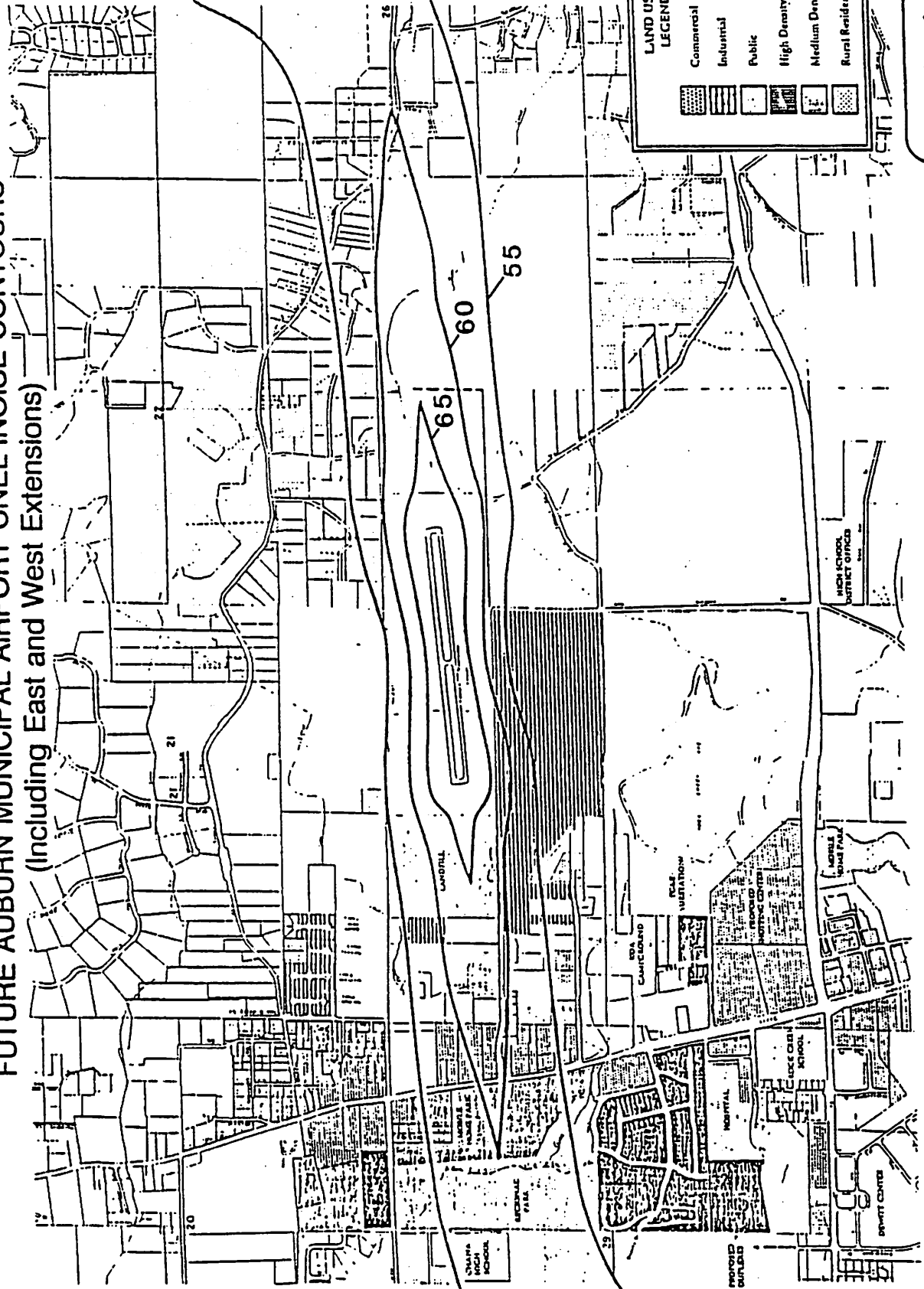


FIGURE 12-8
EXISTING AIRPORT NOISE CONTOUR

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FIGURE I-9

FUTURE AUBURN MUNICIPAL AIRPORT CNEL INOISE CONTOURS
(Including East and West Extensions)



BRA

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FIGURE I - 10

Measured Ambient Noise Levels

Rock Creek Mobile Home Park

June 27, 1991

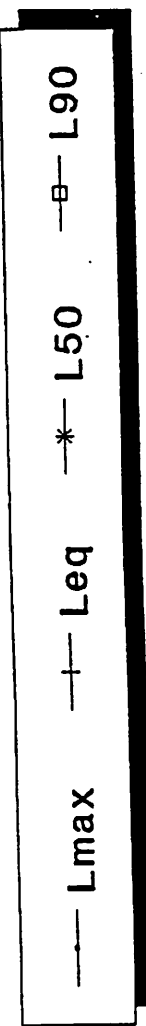
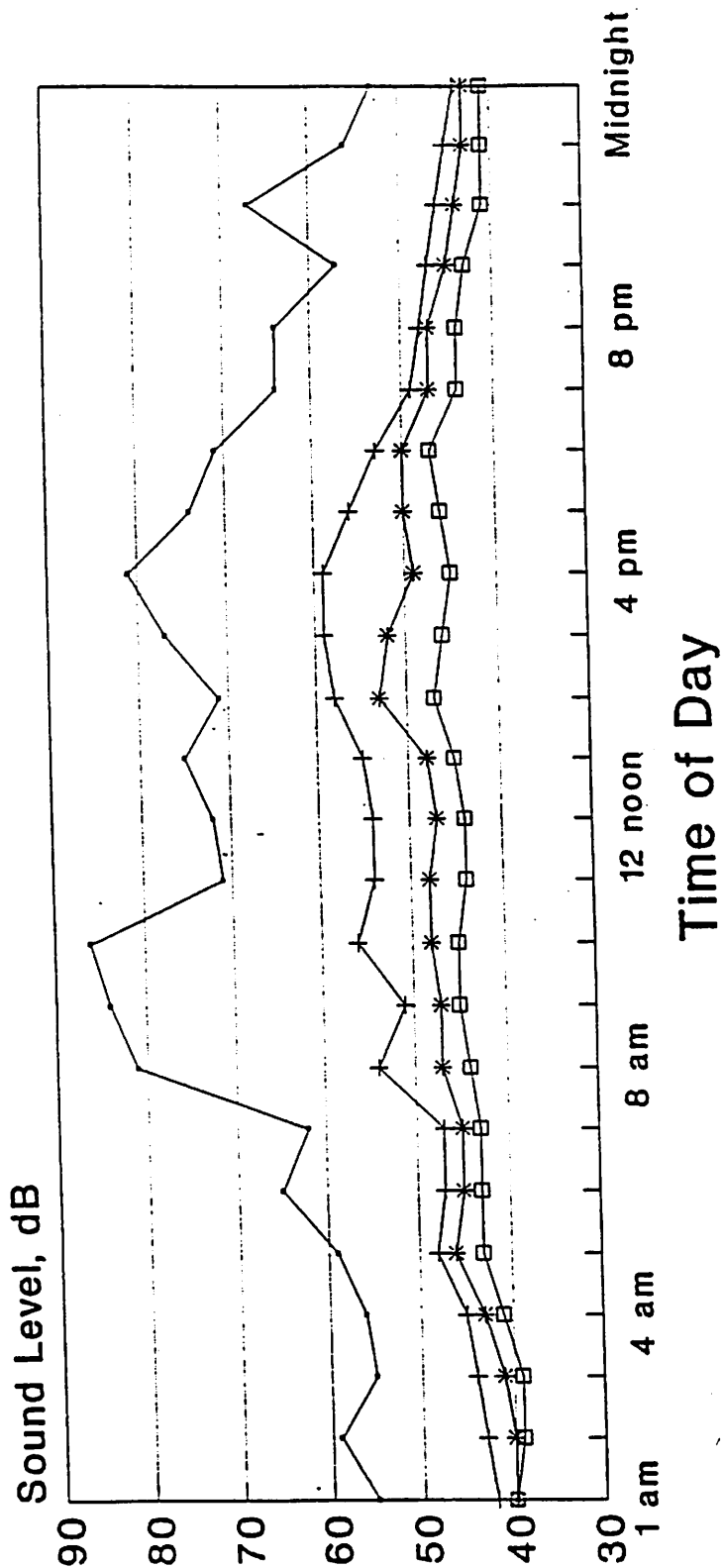


FIGURE 12-1
AIRPORT NOISE MEASUREMENT RESULT

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The Table 12-5 data indicate that the apparent number of daily operations on the 27th and 30th closely approximates the number of existing daily operations reported in the Airport EIR. The decrease in number of apparent operations on the 28th and 29th was probably caused by a shift in wind direction, resulting in departures to the east. Because the Rock Creek M.H.P. is located west of the airport, the eastern departures would probably not register as single events based on the aforementioned single event thresholds.

Although a considerable number of aircraft single events were logged on June 27th and 30th, the computed CNEL values for those days were 50 and 53 dB, respectively. The measured CNEL values on those days were approximately 10 lower than the values illustrated on the EIR noise contour maps.

Community Noise Survey. As required by the OPR Noise Element Guidelines, a community noise survey was conducted to document noise exposure in areas of the community containing noise sensitive land uses. For that purpose, noise sensitive land uses in the Plan area were considered to include residential areas, parks and schools. Noise monitoring sites were selected to be representative of typical noise sensitive locations within the Plan area.

Short-term noise monitoring was conducted on July 17-18, 1991. Each site was monitored three different times during the day and night so that estimates of L_{dn} could be prepared. Two long-term noise monitoring sites were established in the Plan area to record day-night statistical trends. The data collected included the L_{eq} and other statistical descriptors. Noise monitoring sites, measured noise levels and estimated L_{dn} values at each site are summarized in Table 12-6. Monitoring sites are shown by Figure 12-11.

Traffic on local roadways, railroad and aircraft operations, and neighborhood activities are the controlling factors for background noise levels in the majority of the Plan area. Noise from industrial uses was audible during the evening and nighttime hours at residential uses adjacent to some industrial areas.

The L_{90} values shown in Table 12-6 represent background noise levels, where there are typically no identifiable local noise sources. The L_{50} values represent median noise levels. The L_{eq} values in Table 12-6 represent the average noise energy during the sample periods, and show the effects of brief noisy periods. The L_{eq} values were the basis of the estimated L_{dn} values. L_{max} values show the maximum noise levels observed during the samples, and are typically due to passing cars or small aircraft overflights. The results of the continuous ambient noise measurements are shown on Figure 12-12.

Impact Evaluation Criteria

The State Office of Planning and Research (OPR) Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The OPR guidelines contain a land use compatibility table which describes the compatibility of different land uses with a range of environmental noise levels in terms of L_{dn} or CNEL. A noise environment of 50 to 60 dB L_{dn} or CNEL is considered to be "normally acceptable" for residential uses according to those guidelines. The OPR recommendations also note that, under certain conditions, more restrictive

Table 12-6
SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED
DAY-NIGHT AVERAGE LEVELS (L_{dn}) IN AREAS
CONTAINING NOISE SENSITIVE LAND USES

Site	Location	Date	Time	Sound Level, dB						Est. L_{dn}
				L_{90}	L_{50}	L_{10}	L_{eq}	L_{max}		
1	Shirland Road 0.3 mi. east of Auburn ¹ Folsom Road	7-17-91 7-17-91 7-18-91	9:30 13:43 1:37	36 38 31	39 44 34	41 47 36	47.8 46.8 35.0	72 66 41	47	
2	Sky Ridge School ¹	7-17-91 7-17-91 7-18-91	10:05 14:33 1:21	33 41 33	36 44 34	46 48 36	47.7 48.8 34.5	72 73 44	47	
3	Beggs Field/Auburn Recreation Park ¹	7-17-91 7-17-91 7-18-91	10:44 15:03 1:10	48 40 33	52 45 35	61 50 38	59.8 48.8 35.5	78 63 41	55	
4	Paved Recreation Area near College ¹ Way and High Street	7-17-91 7-17-91 7-18-91	11:10 15:28 00:52	44 48 33	46 50 34	49 54 35	46.9 54.9 34.0	56 77 37	51	
5	Gold Street ¹	7-17-91 7-17-91 7-18-91	11:40 15:56 1:03	32 33 34	35 39 35	53 42 38	55.6 43.9 36.5	75 69 50	51	
6	Ashford Park ¹	7-17-91 7-17-91 7-18-91	12:15 17:35 00:42	45 50 47	47 52 50	51 56 55	49.9 53.0 52.0	69 66 64	58	
7	Kemper Road between Bean and ² Country Villa Roads	7-17-91 7-17-91 7-18-91	9:22 13:35 00:29	39 34 36	44 37 39	55 45 44	55.0 47.1 40.5	74 66 52	52	
¹ Within existing City limits.										
² Within existing Sphere of Influence										
³ Within new additions to Sphere of Influence										
⁴ Not within Plan area										

Table 12-6
SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED
DAY-NIGHT AVERAGE LEVELS (L_{dn}) IN AREAS
CONTAINING NOISE SENSITIVE LAND USES

Site	Location	Date	Time	Sound Level, dB					Est. L_{dn}
				L_{90}	L_{50}	L_{10}	L_{eq}	L_{max}	
8	Corner of Copper Penny and Rock ² View Court	7-17-91	10:00	33	40	50	48.2	66	50
		7-17-91	14:05	38	42	50	52.5	73	
		7-18-91	00:20	34	37	40	37.0	42	
9	Auburn District Regional Park ²	7-17-91	10:27	40	44	53	50.6	67	50
		7-17-91	14:30	37	41	49	49.2	68	
		7-18-91	00:13	35	38	40	38.5	51	
10	Old Airport Road near Auburn Airport ³	7-17-91	10:57	40	44	51	51.7	68	52
		7-17-91	15:00	42	44	51	48.8	65	
		7-17-91	23:58	40	41	43	43.5	56	
11	Squirrel Drive ³	7-17-91	11:27	44	48	54	51.5	66	49
		7-17-91	15:30	36	42	49	45.4	60	
		7-17-91	23:47	36	37	39	37.5	49	
12	Ray Circle ⁴	7-17-91	12:03	29	33	39	36.2	48	43
		7-17-91	16:00	32	34	44	46.2	63	
		7-17-91	23:00	28	30	32	32.1	38	
13	175 Smith Court ¹	Continuous site - results are shown on Figure 37							50
14	1235 Oak Ridge Way ¹	Continuous site - results are shown on Figure 37							47

¹ Within existing City limits.

² Within existing Sphere of Influence

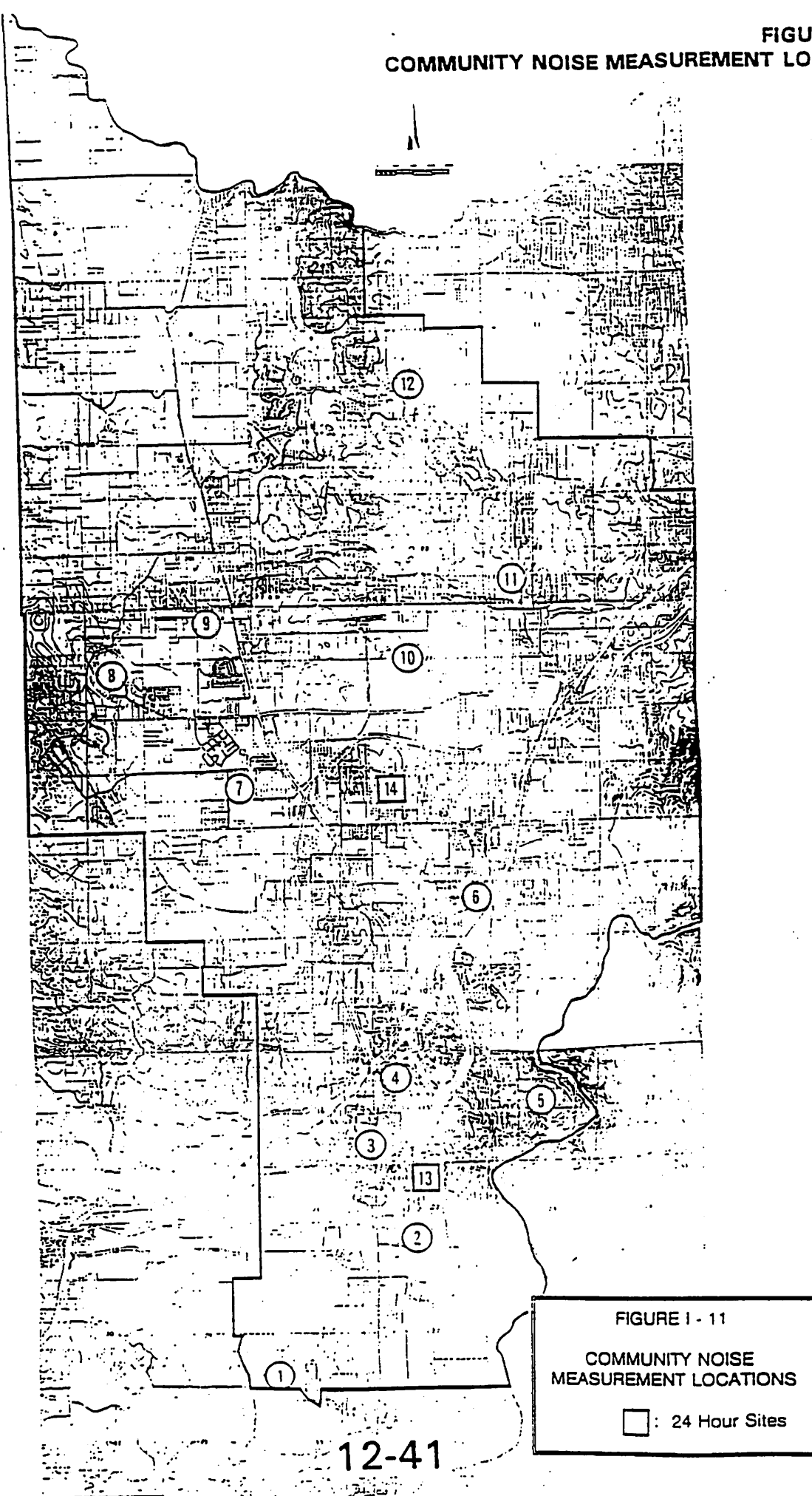
³ Within new additions to Sphere of Influence

⁴ Not within Plan area

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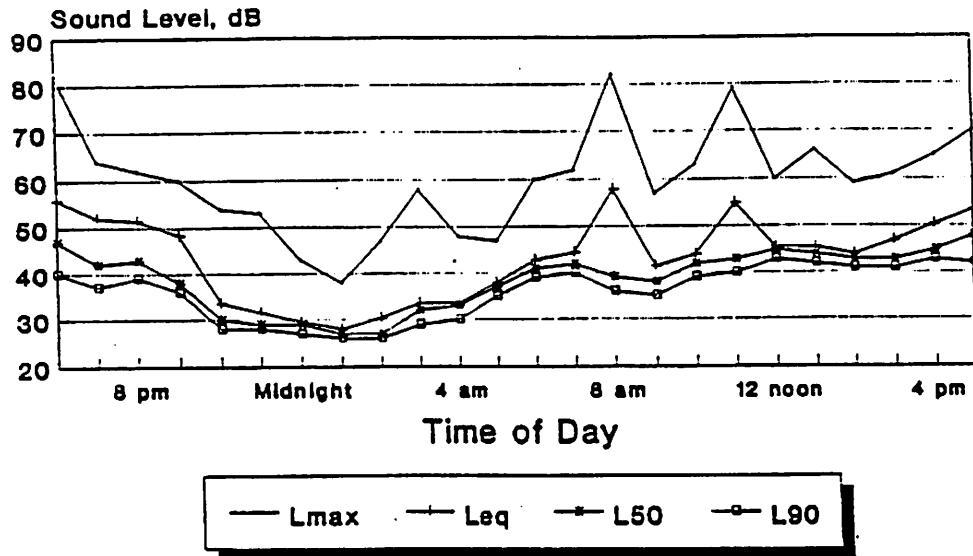
FIGURE 12-11
COMMUNITY NOISE MEASUREMENT LOCATIONS



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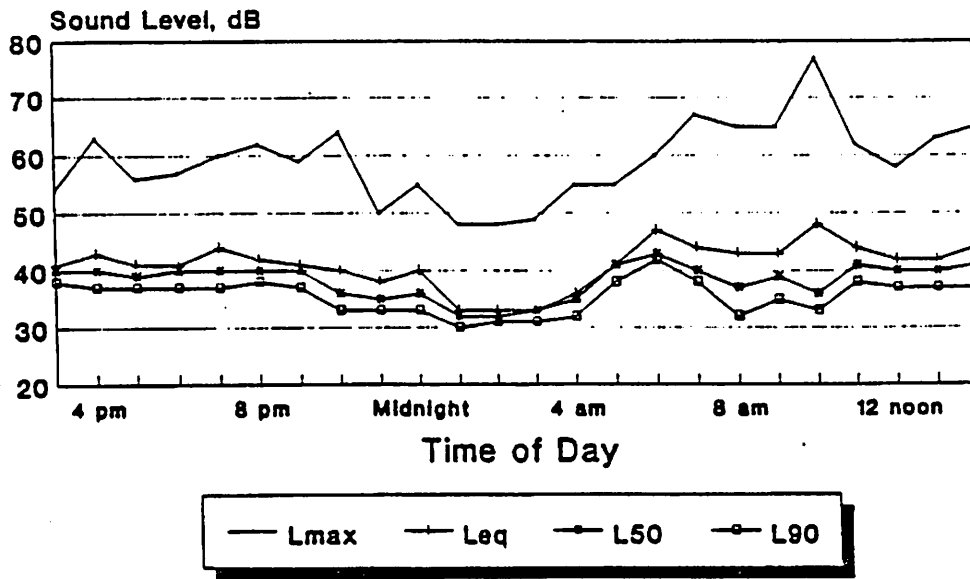
FIGURE 12-12
COMMUNITY 24 HOUR NOISE MEASUREMENT RESULTS

Measured Ambient Noise Levels
Site 13: 175 Smith Court
July 17-18, 1991



Ldn=50

Measured Ambient Noise Levels
Site 14: 1235 Oak Ridge Road
July 16-17, 1991



Ldn=47

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LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE L _{dn} OR C _{NEL} , dB					
	55	60	65	70	75	80
RESIDENTIAL – LOW DENSITY SINGLE FAMILY, DUPLEX, MOBILE HOMES						
RESIDENTIAL – MULTI. FAMILY						
TRANSIENT LODGING – MOTELS, HOTELS						
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES						
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES						
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS						
PLAYGROUNDS, NEIGHBORHOOD PARKS						
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES						
OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL						
INDUSTRIAL, MANUFACTURING UTILITIES, AGRICULTURE						

INTERPRETATION



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.



CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.



NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.



CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

CONSIDERATIONS IN DETERMINATION OF NOISE-COMPATIBLE LAND USE

A. NORMALIZED NOISE EXPOSURE INFORMATION DESIRED

Where sufficient data exists, evaluate land use suitability with respect to a "normalized" value of C_{NEL} or L_{dn}. Normalized values are obtained by adding or subtracting the constants described in Table 1 to the measured or calculated value of C_{NEL} or L_{dn}.

B. NOISE SOURCE CHARACTERISTICS

The land use-noise compatibility recommendations should be viewed in relation to the specific source of the noise. For example, aircraft and railroad noise is normally made up of higher single noise events than auto traffic but occurs less frequently. Therefore, different sources yielding the same composite noise exposure do not necessarily create the same noise environment. The State Aeronautics Act uses 65 dB C_{NEL} as the criterion which airports must eventually meet to protect existing residential communities from unacceptable exposure to aircraft noise. In order to facilitate the purposes of the Act, one of which is to encourage land uses compatible with the 65 dB C_{NEL} criterion wherever possible, and in order to facilitate the ability of airports to comply with the Act, residential uses located in Com-

munity Noise Exposure Areas greater than 65 dB should be discouraged and considered located within normally unacceptable areas.

C. SUITABLE INTERIOR ENVIRONMENTS

One objective of locating residential units relative to a known noise source is to maintain a suitable interior noise environment at no greater than 45 dB C_{NEL} of L_{dn}. This requirement, coupled with the measured or calculated noise reduction performance of the type of structure under consideration, should govern the minimum acceptable distance to a noise source.

D. ACCEPTABLE OUTDOOR ENVIRONMENTS

Another consideration, which in some communities is an overriding factor, is the desire for an acceptable outdoor noise environment. When this is the case, more restrictive standards for land use compatibility, typically below the maximum considered "normally acceptable" for that land use category, may be appropriate.

FIGURE 12-13

standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by 5 to 10 dB to reflect lower existing outdoor noise levels.

The U.S. Environmental Protection Agency (EPA) also offers guidelines for community noise exposure in the publication "Information on the Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety". These guidelines consider occupational noise exposure as well as noise exposure in the home. The "Levels Document" recognizes an exterior noise level of 55 dB L_{dn} as a goal to protect the public from hearing loss, activity interference, sleep disturbance and annoyance. The EPA notes, however, that this level is not a regulatory goal, but is a level defined by a negotiated scientific consensus without concern for economic and technological feasibility or the needs and desires of any particular community. The EPA and other Federal agencies have adopted suggested land use compatibility guidelines which indicate that residential noise exposures of 55 to 65 dB L_{dn} are acceptable.

The U.S. Environmental Protection Agency has also prepared a Model Community Noise Control Ordinance, using L_{eq} as the means of defining allowable residential noise level limits. The EPA model contains no specific recommendations for local noise level standards, but reports a range of L_{eq} values as adopted by various local jurisdictions. The mean daytime residential noise standard reported by the EPA is 56.75 dB (L_{eq}); the mean nighttime residential noise standard is 51.75 dB (L_{eq}). This ordinance format has been applied by the City and County of San Diego.

In addition to the recommendations on community noise criteria, the State Department of Housing and Community Development has a standard for noise levels inside residences of 45 L_{dn} dB which applies when the structure is within the 60 L_{dn} dBA noise contour from a roadway. This is a requirement for multiple-family structures (Title 24).

Impacts

1. **Increased traffic noise due to buildout of the proposed plan.** Table 12-2 indicates the distances to the future locations of the 60 dB L_{dn} noise contour for the year 2010 based on the City's projected traffic levels. The 60 dB L_{dn} level is used because it is the highest noise level normally acceptable in single-family residential areas.

Table 12-7 indicates roadway segments of greatest concern within City limits due to the location of existing residential land uses, the potential for future residences, and projected increases in traffic noise levels adjacent to these roadways. Future exterior noise levels are expected to exceed exterior noise level standards at the front property lines of residences or further into lots adjacent to these roadway segments with buildout of the proposed Plan.

Table 12-7
AREAS OF POTENTIAL IMPACTS TO SENSITIVE RECEPTORS IN CITY LIMITS

Segment	Description	Distance (ft) from Center of Rdwy to 60 dB L _{dn} Contours	
		1988	Future Proposed Plan
I-80	SR49 to Eastern Plan Area Bndr	1204	2135
SR49	Luther to Palm	451	683
Auburn	South City limits to Indian Hill	65	206
Folsom	Indian Hill to Maidu	121	362
Rd	Maidu to Sacramento	126	382
Auburn Rav.	Palm to I-80	83	143
Elm St	SR 49 to Auburn Ravine	178	195
Fulweiler	Carson to SR 49	83	104
High St	College to Auburn Folsom	80	130
Luther Rd	SR49 to Dairy	127	188
	Dairy to Bowman	102	181
Nevada	SR 49 to Mt Vernon	70	102
St	Palm to Enterprise	90	162
	Fullweiler to I-80	83	168
Sacramento	Auburn Folsom to Auburn Folsom	67	156
Dairy Road	South of Luther	37	130
Mt Vernon Rd	Edgewood to Nevada	59	179
Maidu	East of Auburn Folsom	59	94
Indian Hill Rd	West of Auburn Folsom Rd	85	162

In the City's proposed Sphere of Influence area, similar impacts to those described above are expected with implementation of the City's Land Use Designation in its Sphere. The table below indicates the distance to the 60 dB L^{dn} noise contour along these road segments.

Table 12-8
AREAS OF POTENTIAL IMPACTS TO SENSITIVE RECEPTORS IN
THE CITY'S EXISTING SPHERE OF INFLUENCE

Segment	Description	Distance (ft) from Center of Rdwy to 60 dB Ldn Contours	
		1988	Future Proposed Plan
SR 49	Dry Creek to Bell	363	606
	Bell to Cottage	417	584
	Cottage to Atwood	484	591
Atwood	Bear to SR 49	98	195
Auburn Rav.	Palm to I-80	83	179
Bell Road	Joeger to SR 49	141	243
	SR 49 to New Airport	253	485
Luther Rd	SR 49 to Dairy	127	188
	Dairy to Bowman	102	181
Quartz	Galena to SR 49	69	102
Dry Creek Rd	West of SR 49	62	124
	East of SR 49	84	156
Mt Vernon Rd	Edgewood to Nevada St	59	179
Indian Hill	West of Auburn Folsom	85	162

Table 12-9
AREAS OF POTENTIAL IMPACTS TO SENSITIVE RECEPTORS IN
PROPOSED ADDITIONS TO SPHERE OF INFLUENCE

Segment	Description	Distance (ft) from Center of Rdwy to 60 dB Ldn Contours	
		1988	Future Proposed Plan
Bell Road	SR 49 to New Airport	253	485
	New Airport to I-80	295	522
Dry Creek Rd	East of SR 49	84	156
Mt Vernon Rd	West of Edgewood	28	150
Indian Hill	West of Auburn Folsom	85	162

Table 12-10
AUBURN GENERAL PLAN
NOISE ELEMENT TRANSPORTATION-NOISE IMPACT RELATED POLICIES

Policies	
1.1	Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table VIII-1 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are given by Table VIII-2.)
1.2	The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to the Land Use Compatibility Guidelines for Development.
2.1	New development of noise-sensitive uses shall not be allowed where the noise level due to non-transportation noise sources will exceed the noise level standards of Table III-1, as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table VIII-1.
2.2	Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table VIII-1 as measured immediately within the property line of lands designated for noise-sensitive uses. This policy does not apply to noise sources associated with agricultural operations on lands zoned for agricultural uses.
2.3	New development of noise-sensitive land uses will not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table VIII-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table VIII-3.
2.4	Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table VIII-3 at outdoor activity areas or interior spaces of existing noise-sensitive land uses in either the incorporated or unincorporated areas.
2.5	Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table VIII-3 or the performance standards of Table VIII-1, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

SOURCE: City of Auburn General Plan Noise Element, p. VIII-2, VIII-4

Table 12-10 lists the Plan's noise policies which are intended to reduce potential noise impacts. However, because existing residences will be virtually impossible to retrofit for noise insulation (particularly outdoor living areas) and because new residences will be allowed in areas where noise

walls will likely not be acceptable for aesthetic reasons, impacts are expected to be significant and unmitigatable.

Conclusion:

Based on the discussion above and the impact evaluation criteria, impacts to existing and future noise sensitive receptors (mainly residences) from increased traffic noise levels in the Plan area are considered significant and unmitigatable. Mitigation measures are proposed to reduce the level of impact identified, though not below the level of significance.

- 2. Railroad noise - City limits and Sphere of Influence.** Impacts expected within the City and its Sphere of Influence from railroad noise are expected to be similar. Therefore, railroad noise impact discussion will be combined for the City and proposed Sphere in this section.

As discussed in the Setting section, the new Capital Corridor passenger train service operated by Amtrak will likely be extended to the Auburn area. The number of daily passenger trains serving the Auburn area is not known at this time, but will likely be a function of demand. The Placer County Transportation Commission (PCTC) had determined the best location of the rail station would be at the Nevada Street/Mt. Vernon Road Intent section. Due to a lack of information regarding the eventual location of the rail station and the number of potential daily passenger trains passing through the Plan area, the noise consultants could not estimate the potential impacts of this expanded passenger service at the time the noise analysis was conducted. Brown-Buntin and Associates indicated that the noise emissions of freight train operations are substantially louder than passenger train operations, and therefore five (5) additional passenger train operations per day would increase existing railroad noise levels by one (1) decibel. Additional environmental review may be required of the increased train operations.

Existing railroad noise levels were measured by BBA at various locations within the Plan area. The location of noise measurement sites are shown on Figure 12-6. The table below indicates that existing or proposed residences within 250 feet of the eastbound tracks, 185 feet of the westbound tracks and 400 feet of the tracks used for travel in both directions will be impacted from railroad operations. There are numerous existing residences within this noise contour. In addition, there are existing undeveloped legal lots without adequate noise contour setback areas which would not be subject to the requirement for noise analysis because only a building permit would be required for their development.

Table 12-11 may be used to estimate railroad noise levels at existing or proposed noise sensitive developments. The railroad noise contour information provided in Table 12-11 is based on the railroad noise measurement results of Table 12-4, and assumes that the tracks are approximately at grade with the development and that there is no shielding of railroad noise by intervening topography.

The noise levels provided in Table 12-11 should be increased by 3 dB where warning horns are used. The railroad noise exposure will differ from these values where the tracks are significantly elevated or shielded relative to the receiver location.

Table 12-11
APPROXIMATE DISTANCE TO RAILROAD NOISE CONTOURS
CITY OF AUBURN GENERAL PLAN AREA

Railroad Direction	Ldn, dB, 100 ft from Tracks*	Distance to 60 dB Ldn Contour (ft)	Distance to 65 dB Ldn Contour (ft)
Eastbound	66	250	120
Westbound	64	185	85
Both	69	400	185

* If 5 Capital Corridor trains per day operate on these tracks in the future, this level should be increased by 1 dB. Less than 5 additional passenger trains per day would not result in an increase of even 1 dB.

Future residential development within the 60 dB L_{dn} noise contour from the railroad tracks will need to include mitigation measures to reduce noise levels to an acceptable level. Noise walls should be allowed where possible and development setbacks should be used where sound walls are infeasible due to topography, the elevation of the tracks relative to the new development site, or for aesthetic reasons. Policies contained in the Plan (See EIR Table 12-10) should ensure that future residential developments requiring environmental review adjacent to the railroad tracks are not adversely impacted from railroad noise. However, as discussed previously, existing residences and future residences not subject to environmental review or on legal lots without adequate noise setback areas will still be exposed to excessive noise levels.

Conclusion:

Based on the impact evaluation criteria and discussion above, noise impacts from railroad operations are expected to be significant and unmitigatable.

3. **Noise from industrial and non-transportation facilities.** The proposed Land Use Map generally locates industrial areas adjacent to SR49, I-80, the railroad tracks, the Auburn Airport, portions of Lincoln Way, and along Ophir Road. However, residentially designated land uses occur adjacent to industrially designated lands in some instances. In these interface areas, new industrial development or expansion of existing facilities will be required to incorporate adequate noise attenuation techniques into project design to ensure that the 60 dB L_{dn} contour does not extend onto residentially designated parcels. The following policies contained on page VIII-2 of the City of Auburn General Plan should ensure that new industrial developments will include adequate mitigation.

Table 12-12
CITY OF AUBURN GENERAL PLAN
POLICIES RELATED TO STATIONARY NOISE SOURCES

Policies

- 1.1. Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table VIII-1 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are given by Table VIII-2.)
- 2.1 New development of noise-sensitive uses shall not be allowed where the noise level due to non-transportation noise sources will exceed the noise level standards of Table VIII-1, as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table VIII-1.
- 2.2 Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table VIII-1 as measured immediately within the property line of lands designated for noise-sensitive uses. This policy does not apply to noise sources associated with agricultural operations on lands zoned for agricultural uses.

**NOISE LEVEL PERFORMANCE STANDARDS
FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION SOURCES**

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq} , dB	55	45
Maximum level, dB	75	65
Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).		

However, future noise levels surrounding existing industrial and non-transportation related facilities are of concern as discussed below.

Motorcycle Races - Auburn Fairgrounds ~ Motorcycle races at the Auburn Fairgrounds occur on Friday nights from May to September. Approximately 24-30, four lap sprint races take place on a typical Friday evening during the race season, and all racing is completed by 11 pm. BBA conducted noise measurements of typical motorcycle races on September 13, 1991. The

measurements were conducted at three locations in the vicinity of the racing. The first location was the southeast corner of the Fairgrounds at the access road. Average and maximum noise levels of 68.5 dB and 77 dB, respectively, were measured at that location. Site 2 was located 100 feet east of Site 1. Average noise levels at that location ranged from 59 dB to 65 dB, and maximum noise levels ranged from 66 to 68 dB at Site 2. Site 3 was located at Pleasant Avenue, at the residence nearest the riding arena. BBA measured average noise levels of 61 to 63 dB at that location, with maximum noise levels ranging from 66 to 68 dB during the races.

General Plan Area Parks and Schools ~ Parks are often considered noise sensitive uses due to the passive recreation which takes place there. However, such uses may also be significant noise producers during active recreation activities such as basketball and softball games. The amount of noise generated by such uses varies with age of participants, event size and location, as well as the hour during which the activity takes place. To some degree, the noise generated by such uses can be controlled by enforcing curfews, and by locating noise generating activities away from existing or proposed noise sensitive land uses.

Schools are similar to parks in that active recreation at outdoor playing fields of the schools could result in significant noise levels. School buses also add to the facility noise levels. Future land use planning should consider the potential for noise generation at the playing fields, and noise sensitive land uses should be discouraged adjacent to those areas.

Public Address Systems / Drive up Window Speakers ~ Noise generated by these systems depends primarily on the amplifier setting, and is therefore highly variable. Noise measurements conducted at Goldrush Chevrolet and the drive-up window speaker at Burger King resulted in noise levels of 78 decibels at 12 feet from the Gold Rush speaker and 65 decibels at a distance of 5 feet from the drive-up window speaker at Burger King.

Studies have shown that people are more highly annoyed by amplified speech or music than by continuous noise sources of similar intensity such as highway traffic. There are existing residences adjacent to car dealerships and fast food restaurants that use these public address systems on a daily basis. While the noise analysis did not identify any existing impacts to adjacent sensitive land uses from public address systems, it would be appropriate to include a policy in the Plan requiring a noise analysis for land uses proposing the use of public address systems. This analysis should determine the maximum amplifier setting for a particular public address system, depending on adjacent land uses and local topography

Airport Industrial Area. Existing noise sources from this area appear to be associated with operation and/or maintenance of medium and heavy commercial truck fleets. While there does not appear to be any existing noise sensitive land use adjacent to the airport industrial area, the proposed Plan would allow development of noise sensitive uses adjacent to this existing industrial area. The proposed Plan would allow two acre residential parcels

open space and additional industrial land uses surrounding the industrial park.

Policies contained within the Plan will ensure that an acoustical analysis will be performed for any expansion of existing industrial uses, new industrial uses and any proposed residential developments adjacent to the industrial park. These policies should ensure that noise impacts do not occur to sensitive receptors.

Within Existing Sphere of Influence

Auburn Container Company ~ Noise level measurements of this plant indicate that the exterior noise level due to the plant cyclones is approximately 69 decibels at a distance of 100 feet from the buildings. The 60 dB noise contour for the plant would be located approximately 270 feet from the plant. Adjacent residences to the east of the plant are protected from noise impacts with a 60 foot high noise wall at their back property line. The future of this plant is somewhat nebulous at this time. In any event, any expansion of this plant alternative use will require additional noise studies to determine if impacts will occur and to identify appropriate mitigation measures.

Auburn Truss & Lumber ~ BBA noise measurements conducted at the site indicated that saws generated 77 dB at a distance of 25 feet. As a result, existing residences surrounding Auburn Truss & Lumber are not currently impacted. At this time, there are currently no plans for future expansion of the facility. Future expansion of the facility would be required to conform to the policies of the Noise Element requiring an acoustical noise analysis to determine if measures are needed to mitigate potential noise impacts off-site.

Chevreaux Concrete ~ Noise measurements conducted by BBA at the plant indicated an average noise level of 77 dB was measured at a distance of 75 feet from the batch plant during normal operations. There do not appear to be any noise sensitive land uses in the immediate plant vicinity and plant noise is attenuated to the east by steep topography. Any new residential development proposed adjacent to the plant or expansion of the plant's operations will require an acoustical analysis to determine if noise mitigation measures will be needed.

Auburn Placer Disposal ~ There are no existing sensitive receptors currently impacted from operation of this facility. Proposed industrial land use designations surrounding this facility would not result in the location of noise sensitive receptors adjacent to the disposal facility. Policies contained within the Plan should ensure existing and potential impacts remain below the significant level.

Within Proposed Additions to Sphere of Influence

California Department of Forestry Helipad ~ The noise levels generated by the regular DEA helicopter operations at the CDF helipad were calculated by BBA using noise level data reported by FAA for the Hughes 500 helicopter

assuming four operations per day (DEA flights represent the highest use of the helipad). An L_{dn} of 50 dB was computed at a distance of 1000 feet from the helipad directly under the flight path. As a result, existing residences surrounding the helipad are not currently impacted. Proposed land use designations surrounding the site are Rural Density Residential (.5 du/ac) and Low Density Residential (1 du/ac). Since the four flights per day are considered a worst case situation, future use of the facility is not expected to result in significant impacts.

Conclusion:

Policies contained within the Plan should ensure that noise impacts from these stationary sources to existing and future noise sensitive receptors will be mitigated to a less than significant level.

4. **Airport Noise.** The existing and worst case future Airport noise contours prepared for the Airport Master Plan and EIR are reproduced in Figures 12-9 and 12-10, respectively. According to these contours the noise sensitive use most affected by airport operations is the Rock Creek Mobile Home Park, located west of Highway 49 between Bell and Dry Creek Roads. The contours indicate that the Mobile Home Park is currently exposed to aircraft noise levels between 55 and 65 dB CNEL. Future noise levels are expected to range between 60- and 65 dB CNEL for portions of the Mobile Home Park.

Aircraft departures to the east will result in the 65 dB CNEL noise contour, extending over lands proposed for Rural Density Residential - CD-OSP (2 acre parcels), Cluster Development-Open Space Private land uses. This area is currently composed of mostly vacant land in large parcels on 2-acre lots in this area may not allow adequate area to locate future residences outside the 65 dB CNEL noise contour. However, the clustering requirement can be used to ensure that homes are located outside the noise sensitive area. In addition, policies contained within the Plan will require an acoustical analysis to determine more specifically potential impacts and appropriate mitigation measures if airport operations are expanded.

Conclusion:

Based on the discussion above and the impact evaluation criteria, impacts to existing noise sensitive receptors (Rock Creek Mobile Home Park) due to future noise levels from the airport will continue to be significant and unmitigatable. Future noise levels to the east where noise sensitive land uses are proposed are considered significant but mitigatable.

5. **Cumulative impacts - Buildout of both the City plus County land use plans.** The impact discussions above addressed cumulative impacts since traffic projections included County generated traffic. Rail traffic is independent of buildout of the two Plans. Stationary noise sources are not cumulative in nature.

Conclusion:

See individual impact discussions above.

Ref:
Final
EIR,
p.59

The following discussion from Final-59 resulted from changes made by the Planning Commission to the Draft plan:

The land use designation changes made by the City of Auburn Planning Commission could incrementally increase traffic in the Plan area by slightly increasing the potential number of dwelling units and/or commercial acreage in the Plan area. The resulting potential increase in traffic noise will not be substantial enough to affect the noise analysis contained in the DEIR. Therefore, the increase in residential density or commercial intensity will not change any conclusions in the Noise section of the DEIR related to traffic noise impacts.

However, the land use changes will increase the potential number of residences in areas that are currently noise impacted from transportation noise sources. As discussed in the DEIR, in instances where further environmental review is required prior to development, noise impacts can be readily mitigated. However, in instances where legal lots exist and no further environmental review is required, future residences will be constructed in areas exceeding the City's exterior noise level standards. Implementation of policies contained in the Plan will be needed to reduce potentially significant impacts to acceptable levels. It should be noted that the DEIR concluded that mitigation cannot be assured in all instances and unmitigable noise impacts are expected. This conclusion will not be affected due to the Planning Commission's changes in land use designations.

Mitigation Measures

- 1.2 Traffic and railroad noise. Add new policies.** Future residences and noise sensitive land uses which require environmental review will be protected by Plan policies calling for acoustical analysis where appropriate. Noise walls and interior noise insulation methods (including construction techniques and the installation of air conditioners) are the standard measures required. Future noise contours along I-80, Luther Road, and Highway 49 are examples of areas of critical concern where noise walls could significantly reduce future noise exposure. For example, along I-80, an 8-foot noise wall would reduce the 2600 foot distance to the 60 dB noise contour to 1300 feet and to 600 feet with a 12-foot wall. There is no other alternative to reducing exterior noise levels other than setbacks beyond the critical noise contour which would require alteration of the Plan. However, it is expected that in some cases noise walls will not be acceptable for aesthetic reasons or not feasible for financial or other reasons. In these cases, it will be possible to achieve acceptable interior noise levels but it may not be possible to achieve acceptable outdoor living area noise levels.

In addition, new residences and other noise sensitive uses which do not require building permits or which locate on legal lots (with inadequate noise setback area) will not require acoustical analyses, precluding the City's ability to require mitigation.

Existing residences will be exposed to increased traffic and railroad noise also. Mitigation possibilities include retrofit noise walls and interior sound insulation. A noise mitigation retrofit fee is recommended. However, retrofitting will not always be feasible and is not expected to reach a majority of the impacted residences.

The following policies/programs should be added to the Plan based on the discussion above:

- a. **Require Plan acoustical analysis requirements to apply to all residential building permits in areas mapped within the future 65 dB L_{dn} noise contours. Utilize overlay zoning to achieve implementation.**
- b. **Consider creation of a mitigation fee based on trip generation to fund noise insulation retrofit fund for construction of noise walls and grants for structural noise insulation and air conditioning (so that windows can remain closed during summer to achieve full noise insulation value). It is recognized that this fee may not be feasible for political or other reasons and as a result it is not assured that it will reduce impacts below the significant level.**
- c. **Study noise wall feasibility and create noise wall master plan.**

Effectiveness of Measures: These measures are not expected to fully mitigate impacts, however, they are expected to provide the maximum amount of noise mitigation possible without eliminating residential land use designations throughout the Plan area within the future 60 dBA L_{dn} noise contour. That option would need to be characterized as a Plan alternative rather than mitigation.

Implementation: Revisions to final Plan

Mitigation Monitoring: Yearly Plan progress report.

3. **Noise from industrial and non-transportation sources - Include a new policy requiring a noise analysis be performed for any land uses that propose to use a public address system in which noise sensitive land uses are located or could be located within 100 feet of this facility.**

Effectiveness of Measure: This measure will ensure that existing and future noise sensitive land uses will not be impacted from public address systems.

Implementation: Addition of policy in the final Plan

Mitigation Monitoring: Annual Plan progress report and individual development review

4. **Airport Noise. Require residential clustering within the 65 dB L_{dn} contour to the east of the airport. Implement via overlay zoning. Show airport influence zone and noise contours on Land Use Map and Zoning Maps.**

Effectiveness of Measure: This measure is expected to reduce impacts to future residences below the significant level. However, existing mobile home residents are expected to continue to be significantly impacted.

Implementation: Revisions to final Plan

Mitigation Monitoring: Annual Plan progress report. Individual development review.

5. **Cumulative impacts — Included in discussion above.**